PESTICIDES ADVISORY BOARD

PROCEEDINGS OF PUBLIC HEARING

CONSEIL CONSULTATIF DES PESTICIDES

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Secretarial note: Due to technical problems, sections of the recording tapes were unintelligible. The transcript has been produced as faithfully as possible.

Note de la rédaction: En raison de difficultés techniques, on n'a pu comprendre certaines parties de l'enregistrement de l'audience. On reproduit ici le compte-rendu aussi fidèlement que possible.

DECEMBER 05/1984

CHAIRMAN: My name is Ken Browne, and I'm the chairman of the Pesticides Advisory Board. As chairman of this meeting, I would like to welcome you here this evening. Before we hear from our first presentor, there are a few procedural items I would like to go over. The object of this meeting is to provide an opportunity for the public to express their opinions on any aspect of pesticides. This may include the use, non-use or abuse of pest control products.

A full transcript of this meeting will be prepared and made available to the Minister of the Environment. In order to ensure that these transcripts are as accurate as possible, I will request that all presentors use the microphones provided and indicate their name and affiliation before they start.

There is a table set up at the back of the hall, would all presentors please identify yourselves to the official at this desk. He has arranged for a photocopy service--he has <u>not</u> arranged for photocopy service! He was trying to, but it was not available. He does have available earphones for simultaneous translation.

With regards to the media, I would ask them to conduct themselves so as not to interfere with the presentations. They may conduct interviews outside the hall or during the coffee break.

I would now like to introduce to you the members of the Pesticides Advisory Board here this evening:
- On my far right, Mr. Stephen Hoyt, who is a forester with the Department of Natural Resources;
- Beside him is Mr. Norman Prentice, wildlife biologist with the Department of Natural Resources;
- My name is Ken Browne, I'm a biologist with the Department of the Environment;
- To my immediate left is Mr. Kirk Gordon, he is an environmental planner with the Department of the Environment;
- Beside him is Sandy Perley, a plant pathologist with the Department of Agriculture and Rural Development.

- Absent this evening: Dr. Don Ecobichon, a toxicologist with the Department of Health;
- Dr. David Walters, director of public health with the Department

of Health;
- Dave Finnamore, an entomologist with the Department of Agriculture and Rural Development;
- Bob Lutes, who is a chemical engineer with the Department of the Environment;
- and Bandu Imbulgoda, with the Occupational Health and Safety Commission.

As I mentioned before, the object of this meeting is to hear from the public and to make available to various groups in the province this evening's proceedings to the Minister of the Environment. At the end of each presentation, the Board members will have the opportunity to ask questions of the presentor. If time permits, I will ask the presentor whether he wishes to entertain questions from the floor. It is his choice whether he wishes to entertain questions from the floor.

Members of the Board are here to listen to the presentations. They are not to enter into a debate or a discourse with the presentors or members of the audience. They will, however, attempt to respond to any questions or points of clarification with regards to the Pesticides Control Act and regulations.

I would now like to call on our first presentor, who is Blair Hodgson, with New Brunswick International Paper.

HODGSON: (opening remarks inaudible)
NBIP Limited owns and ooperates a newsprint mill at Dalhousie which produces annually close to 300,000 metric tons of newsprint of which about 87% are exported. Part of the wood fibre for this mill comes from 940,000 acres of N. B. Crown license and 400,000 acres of private land. Other sources of fibre are purchased roundwood and purchased wood chips.

The amount of wood that can be harvested annually - the allowable cut - from these forests has been carefully calculated using computer analysis and data from forest inventories, permanent plots, aerial photos, maps, etc. This annual allowable cut of wood, upon which the mill depends for its raw material, can be maintained <u>only if the forests are protected against fire, insects and diseases.</u> Certain silvicultural treatments are also needed, such as planting, stand tending with herbicides and site preparation, to maintain the productivity of the forest. Nature alone will not produce the kind of forest and the type of trees required to keep our mill operating.

Pesticides are needed in forest management for two main purposes. The most important use of pesticides in forestry is to control insects that defoliate and kill trees. In 1984, chemical insecticides such as Matacil and Fenitrothion were applied against the spruce budworm by Forest Protection Ltd. on 1,908,500 acres of forest on New Brunswick Crown Land and on 51,556 acres on freehold land in the Miramichi, near Boiestown. In addition, 1400 acres of forest were treated with the bacillus Thuricide. Even though the total acreage sprayed is fairly large, the active amount of chemical applied is small ranging from 70 g per hectare with Matacil to 210 g/ha with Fenitrothion, which is the equivalent of 1/8th to 3/8 of a cup of chemical per ha.

We are fortunate that continued protection against the budworm is being provided in New Brunswick. Flying over the forests of Gaspé, just north of here, we see what the budworm can do to a forest that is not protected. Large areas of this forest are dead or dying as a result of inadequate protection.

We can ill afford to have the same losses occur here in New Brunswick. Every softwood tree that is growing now is needed now or in the near future to supply pulp and paper mills, as well as numerous sawmills with wood. These industries provide a livelihood for thousands of people in New Brunswick.

The second important use of pesticides in forestry is to control weeds in plantations with herbicides. Weed species, such as raspberry and pin cherry, as well as undesirable hardwoods, invade the cut-overs after harvesting, site preparation, and planting. These weed species grow faster than the spruce, fir and pine that we would like to see grow and develop into merchantable trees. Weeds will suppress and eventually kill planted seedlings. As we spent more than $200. per acre to grow and put these seedlings into the ground, we cannot afford to lose these seedlings. Herbicides, if applied in August, when growth of conifers has stopped, will kill or temporarily control these brush species, without harming the seedlings that we favour.

In 1984 we used the herbicide Roundup (Glyphosate) for the first time, after licensing by the federal government for forestry use. Roundup has undergone lengthy tests and thorough toxicological evaluations. It is a safe and effective herbicide that will replace previously used chemicals. We have sprayed Roundup with fixed-wing aircraft on 1000 acres of plantations on our Miramichi Lumber Co. freehold. The Department of Natural

Resources treated about 2,300 acres with Roundup on our Upsalquitch limit.

Herbicide spraying on our freehold and limit has given us good to excellent control of undesirable brush species. Studies in Ontario have shown that spraying with herbicides increased total height of softwood species by 73% and total volume by 260% after 10 years in comparison with untreated areas. Dr. Baskerville, Dean of Forestry at U. N. B., stated in 1981 that "the delay of 10 years in availability of wood from plantations, such as might occur from a ban of herbicides, would force the reduction of industrial consumption to about one-half of its current level."

In conclusion, we would like to mention the following:

(1) Recent wood supply analysis by the department of Natural Resources has shown that to meet and maintain present industrial wood requirements, a high level of silvicultural treatment such as planning, thinning, etc., is needed. Adequate protection must be provided to preserve the present forest and to ensure the development of the future forest. These protection measures must be supported by government authorities as well as the public at large.

(2) Protecting the forest resources, through careful use of pesticides, is vital not only for the survival of the industry, but also important for the economy of the province. Protecting the forest also means protecting jobs, directly and indirectly linked to the forest industry. Interrupted or inadequate protection will result in losses of economic activity and employment and will affect the well-being of the province.

(3) Future expansion of the forest industry will require the large scale introduction of fast growing, genetically improved tree seedlings. These large investments cannot be considered or carried out unless the assurance is given that adequate protection will be provided against all harmful agents, such as fire, insects, diseases and competing vegetation.

Thank you very much. My presentation is to the Board, Mr. Chairman.

CHAIRMAN: Are there any questions from members of the Board?

BOARD MEMBER: (Question inaudible.)

HODGSON: We have a pine and spruce seedling orchard. It's been in the process now for about six years. In addition, because of the expense of this particular project, our company, NBIP, has bought a farm just outside of Ottawa, to go into growing orchards. We're going to be, hopefully about 15 years from now, introducing some genetically improved black spruce...(inaudible)

CHAIRMAN: Your Company has carried out handweeding programs in the past. Could you please indicate to the Board what you found to be the cost of such programs and your opinion on their success?

HODGSON: I don't have the cost, Mr. Chairman, to give you in hard numbers. I can deal with it in relative numbers. The cost of handweeding is at least $200 more, if not $250 more, than chemical treatment. That is one aspect of it. Unfortunately, that's not the only aspect. Anybody who has any experience in hand clearing will recall that, within a year, you get all kinds of sproutings from the trees that were cut. It doesn't kill them, it simply stops them for a little while and they come back. Instead of having one stem, you have ten. It is very, very short-lived in terms of benefit...(tape inaudible.)

CHAIRMAN: The next presentor on the agenda was Don Lockhart, from the Forest Producers Association. Mr. Lockhart has provided the Board with copies of his presentation. He was unable to make it here this evening. His presentation will be entered into the transcript.

(Following is the text of Mr. Lockhart's presentation.)

PRESENTATION TO THE NEW BRUNSWICK PESTICIDES ADVISORY BOARD:

In reviewing the possible subject matter for this presentation it became obvious that there is really nothing new for us to say, and the fact that we have been saying the same thing pretty well every year for the past five years, surely is boring and certainly is repetitive, and in the long run, perhaps not too useful.

Briefly stated, trees still grow in New Brunswick. Trees provide the backbone to our greatest single producer of employment - the forest products industry. This area <u>minus</u> the Frasers, the Consolidated-Bathursts, the NBIPs, the Nigadoos, the Bélangers would be in one <u>terribly sorry mess for sure.</u> So, manage the

forest we must, and the forest crop - like any other crop - must be protected against fire, against disease, against insects, against competing weeds. If this protection, if these protections are denied, then it's "game over." And frankly, we believe that just about every person in this Province understands this fact full well; except of course the "antibodies" - they are a small vocal minority who seem to be against just about everything.

Sometimes we may think that these unwarranted attacks on the forest products industry, on forestry, and on foresters in general, are confined to Atlantic Canada. Not so at all, and I am reminded of this as a result of a recent exchange of correspondence. It seems that on March 23 a person by the name of Annie Street who signs herself as "Director, Program on Energy and Environment" of the Interfaith Center on Corporate Responsibility - "A Sponsored Related Movement of the National Council of Churches" located in New York City, wrote to Dr. Maxwell L. McCormack, Jr., a Research Professor with the Cooperative Forestry Research Unit, College of Forest Resources, University of Maine at Orono, as follows:

"Dear Mr. McCormack:

"I was recently given your name by another forester whom I met last week-end at the New England Environment Conference. I understand you may be able to help me by providing me with some information for a project we are working on.

"The Interfaith Centre on Corporate Responsibility, a coalition of some 200 Catholic orders and Dioceses and 14 major Protestant denominations, works on a number of different issues of corporate social responsibility. As a staff member I coordinate the churches' corporate responsibility work relating to Energy and Environmental issues. We have recently been asked to look into the case of herbicide spraying by three companies in Nova Scotia.

"A number of local residents in the area are concerned that the companies will be spraying chemicals which could have an adverse effect on the surrounding area and its inhabitants. They are trying to get the companies to use manual release to clear the softwood forests, with labour subsidized by a federal government employment program.

"I wonder if you would be kind enough to inform me about the feasibility, relative merits etc. of this.

"I am enclosing some information for you, and I look forward to hearing from you. Sincerely,..."

Dr. McCormack, one of the most highly-respected forest researchers, replied as follows:

"Dear Ms. Street:

"This is in response to your inquiry of 23 March concerning industry spraying of herbicides in the forests of Nova Scotia. There is a wealth of scientific documentation and experience relative to the question. I an personally familiar with the issues you raise with your enclosures. Also, I am well acquainted with the forestry practices in question and the situation in Nova Scotia.

"The materials which you submitted for my review are biased, report invalid studies, misrepresent facts, distort the Cape Breton court case, use incorrect terminology, and distinctly rely on political/emotional approaches in addressing a scientific and technical subject. As a scientist directly involved with the subject, I would rather not engage in further nonproductive, emotional banter over issues which I consider to be firmly resolved in the scientific arena. If the political/legal arena is the place to determine the laws of nature (e.g. the process of photosynthesis, ecological succession, seed germination, etc.) then I have wasted my career. Consequently, it is my opinion there is no justification for the effort you propose.

"(1) Manual release treatments are dangerous, unproductive, inefficient, and frustrating. The end result is a costly aggravation of the problem with ever-increasingly difficult work and comsequent deterioration of the forest condition. If federal support programs exist to provide employment then provide the people with safe, productive work which will give them satisfaction -- not frustration.

"(2) Your information on TCDD misrepresents the real situation in forestry as well as the historical basis for cancellation of 2,4,5,-T.

"(3) Agent Orange terminology is inappropriate to the issue at hand and serves only to fan emotional overreaction to the misrepresentations.

"(4) 2,4,5-T is rapidly decreasing in use (the politically imposed end to its manufacture, in effect, removes the supply) and more effective new materials are being prescribed through intensive forest management analyses. Therefore, the questions you pose are mainly suitable for academic discussion at this point.

"Time does not permit a detailed response. I have devoted most of my life to protecting and culturing a healthy, productive forest. I become deeply perplexed over irresponsible accounts such as that by Bill Schabas whose qualifications list as "freelance journalist".

"I regret my reply must be in such negative spirit. However, the apparent constant need to answer the same questions over and over with ever more well-founded answers is also frustrating as well as in conflict with carrying out my responsibilities to the forest of the northeast. Vast amounts of literature on your topic are available. In the event you, or your staff, should ever travel through our region, with sufficient advance notice, I would be pleased to arrange a field tour for you to observe some of the practices in question. Questions about the forest are understood best in the forest. Sincerely yours,.....

The bottom line certainly has to be, as Dr. McCormack states, "vast amounts of literature on the topic are available", and that in the final analysis the proof of the pudding is in the eating, and the eating is to be found out there in the forest, not in legislatures, or high school auditoria or church pews, or broadcast studios. We would commend on-the-spot observation to everyone and we would be delighted to arrange such viewing at any time, for any one.

Respectfully submitted,

(signed)

D. D. Lockhart, R. P. F.
Executive Director

CHAIRMAN: We will move on to the next presentor, who is Stewart Beckingham.

BECKINGHAM: I only have two copies of my brief here this evening, Mr. Chairman.....(tape inaudible) I'm appearing here tonight on behalf of the Concerned Parents Association, and also on behalf of the Chaleur Environmental Protection Association.

In May of 1983, the Executive Director of the New Brunswick Forest Products Association, Mr. Donald Lockhart, told a parliamentary committee on Forestry in Ottawa that he wonders "what all the fuss is about" over forest spraying because in Canada the agricultural use of chemical pesticides is much greater than the forestry use. Taking the nation as a whole, with the vast expanse of industrial agriculture which exists in many provinces, it is not surprising that the agricultural use of chemicals exceeds forestry use across the whole country.

What the fuss is all about, however, is what is happening here in New Brunswick, where the picture is just the opposite. Here in 1982, for example, budworm spraying made up more than 99% of the insecticide that was sprayed under permit both by aircraft and by ground application. Even if we add on the amount of all insecticides sold and presumably used in New Brunswick in 1982 (26,339 kg), we still find that forest spraying accounts for 96% of insecticide use in New Brunswick.

Table 1

INSECTICIDE APPLIED UNDER PERIT 1982
(Kilograms of active ingredient)

	Forestry	Other	Total	%Forestry
AERIAL	672545 kg	755 kg	673300 kg	99.88%
GROUND			393 kg	
TOTAL			673693 kg	99.82%

Similarly, when we look at herbicide spraying, 33,337 kg were applied under permit for aerial and ground applications, and of these more than 30,000 kg or 91% were forest spraying. (See Environment New Brunswick's report on Pesticide Usage, 1982, pages 23 to 28, and page 34.)

Table 2

HERBICIDE APPLIED UNDER PERMIT 1982
(kilograms of active ingredient)

	Forestry	Other	Total	% Forestry
AERIAL	29308 kg	709 kg	30017 kg	97.6%
GROUND	1060 kg	2260 kg	3320 kg	
TOTAL	30368 kg	2969 kg	33337 kg	91%

We continue to be very concerned about the effect of the continuing heavy use of chemical insecticides and herbicides near our homes. In previous briefs to this Board, the Concerned Parents Group has raised questions about risks to human health. We have talked about the danger that fenitrothion could cause nerve damage. We have pointed out the higher incidence of serious health problems like Reye's syndrome, birth defects and cancer in our province. We reported the Kawachi research to you, which showed that fenitrothion causes mutations and chromosome aberrations. We have said to you that pesticides whose registration was based on data supplied by a laboratory which was charged with falsifying its tests should not be permitted to be used in New Brunswick. We have given you evidence that the use of chemical pesticides has interfered with the balance of nature and made the problem worse, not better.

In regards to this, let's look at what Mr. Hodgson said just a second ago when he pointed out that the forest to the north of us, which has not been sprayed, is being devastated. Of course, it's a very simple biological fact that anything being threatened is going to go where it's not being threatened. So, in New Brunswick we sprayed, the bugs left and went north.

I mean, we see it in Dalhousie all the time. As soon as we spray, every lamppost has at least 200,000 moths just hanging around waiting.

We have made a number of recommendations for alternative approaches which could reduce New Brunswick's use of chemicals.

What is the current status of these concerns?

In terms of human health risks, three task forces have been appointed to study our problems of Reye's Syndrome, birth defects, and cancer. To date, all three of these expensive task forces have been unable to complete their work. The problem seems to be that the task forces were unable to find a way to measure the amount of human exposure to spray chemicals in each of the past years, and therefore they were unable to say whether our excesses of certain types of birth defects, and cancers, and Reye's Syndrome are due to spray exposure or not. The task forces <u>were able</u> to confirm that we do have excessive health problems in New Brunswick. They just can't give us a reason why.

The federal government has recently published their assessment of the lab studies done on fenitrothion by Industrial Biotest Laboratory (IBT), the now infamous lab whose directors were indicted for falsifying pesticide tests. In their assessment there is no mention of the research on mutations done by the scientists at the Japanese Cancer Institute and led by Dr. Kawachi.

On the issue of neurotoxicity (nerve damage) the assessment committee concluded that the more recent studies on whether or not fenitrothion causes nerve damage indicate a need for this topic to be examined again, using more up to date techniques. The committee's report makes a recommendation which they say applies for all pesticides:

> "Increased priority should be given to research on the mechanism of longterm neurotoxicity (including "delayed" neurotoxicity) of organo-phosphates in general (not only fenitrothion).
>
> -NRCC#22492, 1984, p. 16

In the meantime, however, while this review of the IBT research on fenitrothion was going on, you, the Pesticides Advisory Board, continued to advise the Minister of the Environment to

sign permits allowing millions of pounds of this poison to be sprayed all around us. Now that the review is done, and the committee has found that not enough is known about the capacity of fenitrothion to cause nerve damage, will your board continue to recommend its use? Is the priority research that the committee recommends going to be done on us, the people who live in New Brunswick?

Another pesticide whose registration relies heavily on testing done by IBT is Roundup. This product's tests have also been under review, and the company has been very guarded about its research. The Task Force on birth defects reported last spring that it was unable to gain access to toxicological information on Roundup. Nevertheless your Board advised the Minister of the Environment to permit Roundup to be used in aerial spraying of forests in New Brunswick in 1984 as close as 155 metres from peoples' homes.

In March of 1983 the International Agency for Research on Cancer (IARC), part of the World Health Organization, published a monograph on the cancer-causing risk of pesticides to humans. It says that certain kinds of pesticides react with nitrite to form N-nitrosamines. Nitrites are a normal part of human saliva, and are present in soils treated with fertilizer. Nitrosamines are known to cause birth defects, gene damage and cancer. But according to the IARC report, "the nitrosated forms of pesticides have not been extensively studied in any system."

One of the pesticides that forms an N-nitroso compound is glyphosate, better known to us as Roundup. The compound formed is N-nitroso glyphosate. So far scientists have found that it causes gene mutations in bacteria. Apparently there have been no cancer studies on it yet. Rat studies of glyphosate itself will not help us much because rats do not have nitrites in their saliva as humans do, so the glyphosate would not form an N-nitroso compound in rats.

But what about people who drink water that contains Roundup? How many New Brunswick wells contained glyphosate this summer following forest spraying with Roundup only 155 metres from houses? What effects on human health can we expect to see in the short and long term? How long does Roundup last in water? Does anyone know the answers to these questions?

The need for changes

This past year has seen a move toward the use of biological insecticide Bt which we regard as a safer alternative to chemicals like fenitrothion or matacil. This was accompanied by a more specific or 'targetted' approach to pesticide application, at least in the southern part of the province. Reports of predicted budworm hazard for next year look like the situation has improved in the south but not in the northern half of the province, where spraying with chemicals was as heavy and widespread in 1984 as in previous years. We believe that we need a better approach than what we've been getting for the past 33 years. The more they spray the more they have to spray, it looks like. We have seen no signs yet of an increase in biological pest control methods in New Brunswick. On the contrary we have recently seen the federal government withdrawing its support for biological research within branches of the federal Department of the Environment.

It has now become even more urgent for the provincial government to support research in the areas of Biological Pest Control and the biological impact of chemicals used in chemical pest control. Part of the cost of this research should be borne by the users of chemical pesticides. We would therefore recommend that a fee be charged for each pesticide permit, based on the acreage to be sprayed. Permits for biological insecticides should be exempt from fee. A fee as small as $.05 per acre would yield $200,000 from a 4 million acre budworm spray program alone, enough to pay for several biologists to do year-round research and monitoring.

In concluding, we would like to quote a statement made two years ago by Dr. M. K. Tolba, the Executive Director of the United Nations Environment Programme. He said:

> "Unhappily, I must report that governments have not matched the developing environmental knowledge with deeds. The concepts for ecologically sound management have been imperfectly or too slowly applied. In some cases they have been ignored entirely. Peoples' health is being put at serious risk by the increasing volume and numbers of potentially dangerous chemicals released every day into our environment."
>
> IRPTC Bulletin, Oct. 1982, p.2

Based on our continuing concern for a safe and healthy environment, we make the following recommendations:

1. Forest spraying with chemical insecticides and herbicides should cease in New Brunswick.

2. The Minister of the Environment should encourage the use of biological pest control methods including Bt wherever possible in preference to chemical pesticides.

3. If chemical pesticides continue to be used on forest land, there should be a two mile setback from habitation for all aerial application of chemical pesticides, including Roundup.

4. Monitoring of drinking water in areas adjacent to pesticide applications should be carried out on a regular, on-going basis, and if pesticides are detected the province should provide a clean supply of drinking water. There is no "acceptable level" of contamination of drinking water by chemical pesticides.

5. The costs of pesticide monitoring and damage should be borne by the users, not by the taxpayer. A permit fee should be levied based on the size of the acreage to be sprayed.

6. All ground application of restricted and commercial chemical pesticides should be controlled by permit just as aerial applications are.

7. The province should support research, development and implementation of nonchemical methods of pest control.

Thank you very much for your time, gentlemen. I will entertain questions from the floor.

CHAIRMAN: Thank you very much. Are there any questions from members of the board? It's unfortunate...(tape inaudible) I would be interested in getting your references...you mentioned genetic mutations in bacteria were caused by glyphosate. Do you have a reference for that statement?

BECKINGHAM: Yes, I do believe that it's from the International Agency for Research on Cancer, the IARC Monographs volume 30 published on the 22nd of June, 1982.

(Discussion inaudible.)

SANDY PERLEY: I was interested in your idea of an acreage charge to generate quite a lot of money. Who do you envisage would

control that money? Do you have any ideas on that?

BECKINGHAM: Yes, it doesn't really matter to us, as long as the work is done. Who controls the money is immaterial, as far as I can see. As long as the research is done on the chemicals that are being used. If you're going to use a chemical, and pay the fees for research on it, use that fee money to research that chemical. And if you find anything, be it good, bad, or indifferent, report on it, and then, again the next year, we're going to use some kind of chemical, we'll charge the fee again, to do the research on that chemical. I know sir, I didn't answer your question correctly. Our concern is not how it's going to be administered. We pay an awful lot of money out of our taxes for you people to make those decisions for us. So make those. We're saying, let's put a fee structure of some sort in, so that the money will be there to do some research of some sort. The federal government is cutting back, biologists are being cut right, left and centre, particularly here in Atlantic Canada. So here's a way to replace some of that money. Surely some of the work that's being done by the feds can be picked up by the provincial people, done in some provincial laboratory.

SANDY PERLEY: Would it be acceptable, say, the Pesticide Advisory Board would decide how to spend the money? If it were put in place, they would be the ones more than likely, would it be acceptable if this Board decided where to put the money, whether it were health concerns or environmental concerns or whatever?

BECKINGHAM: As long as it was health or environmental concerns, I don't think we'd have too many problems. If you were going to do some kind of continuing industrial research, we'd probably have a great deal of complaints about that.

BOARD MEMBER: (inaudible)

BECKINGHAM: Right. If you were restricted to those two branches, either health or environmental issues, then we'd probably be most happy to support you in any way, shape or form you have this fee structure implemented. But if you are going to continue on with some kind of continuing industrial research, then we would most certainly not (tape inaudible)

CHAIRMAN (tape inaudible)

BECKINGHAM: Yes, I believe....we mentioned a fee of $.05 cents per acre, we were talking about 4 million acres. We're saying

we could raise $200,000. It's roughly 4 million acres in this province, isn't it, that you're spraying for budworm? Mr. Hodgson mentioned just slightly over two million acres by NBIP alone, and I'm sure the Irving interests must spray at least that much or more. So I'd say that 4 million acres, for budworm alone, is a fair ballpark figure. We're talking only about budworm spraying. Now if you were to include the rest of the land that is sprayed with permits from you people, then it would probably be a much higher number. We're not saying anything about that. But that could be some kind of extra burden being put on small farmers, but we're talking about multinational and transnational corporations that can afford this. They're going to spend successive amounts of money on the spray program, and they should be able to afford another five cents. Mr. Hodgson mentioned that it costs another $200.00 to $250.00 an acre more for mechanical clearing.....well, what's that against five cents extra?

CHAIRMAN: Thank you very much. Yes, we have a question from the floor. Could you please identify yourself?

MACDONALD: Ian MacDonald, New Brunswick Forest Products Commission. I have two questions, Mr. Speaker. I'm sure that the talks about the tremendous swath of pesticides used in the forest and I'm quite sure that if you took the same area of agricultural land.....

BECKINGHAM: But we're not using that much agriculture in New Brunswick. It's all done in the forest, that's what we're saying! In the rest of Canada, it's agricultural. Here in New Brunswick, it's on forests!

MACDONALD: If you take the agricultural area, say an acre or a hectare, then you take the forested area, an acre or a hectare, I'm sure you'll realise that 98% of pesticides per acre, per acre or hectare, is on the agricultural land and only 2% of the volume per area is on the forest. It's just as you say, there are four million acres sprayed, with a 2% equivalent application, and that is how you end up with a tremendous volume. And I just want to be sure you appreciate this. Another thing, the agricultural areas are very close to habitation.....(tape inaudible) But I also....you're asking to stop the spray program for forests. Are you asking the agriculture programs be stopped as well?

BECKINGHAM: Of course! If you're going to use dangerous chemicals

in one area, then....Right now, in this province, because of the controversy stirred up because of the aerial spraying of the forests, the agricultural side has been pushed to the background. It's not in the forefront. We don't have any kind of exposure.....In Halifax, last year in 1983, 14 out of 17 cases of Reye's Syndrome came from New Brunswick. But we don't have any evidence of how this is related, you know? We will admit that somehow or other it's going to be related to spraying. Overwhelmingly worldwide, evidence seems to be against (tape inaudible) But the thing is that, right now in New Brunswick, we don't seem to be experiencing these problems with agricultural spraying. I don't know, I'm not prepared maybe, but I don't know everything. I'm saying that I am not firmly aware at this time of any statistics which point out that agricultural spraying in New Brunswick is leading to contamination of watersheds or you know, but it does happen.

MACDONALD: Mr. Chairman, I'd also like this gentleman to answer about all the pesticides and herbicides....being sold over the counter in hardware stores, general stores, and I include the Sugarloaf Mall.

BECKINGHAM: That's right.

MACDONALD: Now, also these pesticides are being used much handier to the homes and right when the children are there. They are used in an unregulated manner right around our homes, not only here in Campbellton, but elsewhere in New Brunswick. Now what about them? Are you suggesting that...

BECKINGHAM: I mentioned this twice in our brief that all pesticides throughout New Brunswick should be controlled by the Pesticides Advisory Board, that permits should be needed for all of them. I don't believe that the products sold to the buying public today are necessary. The things that are sold are sold because some corporation wants to make money, not because they're safe for people. We just had an example of that two days ago in India. Union Carbide, one of the worst exploiters of the Third World, has now killed over 1200 people and infected over 200,000 and what are they going to do? They're likely going to fob off two bucks to the guy that's running for election right now, and get away with it.

MACDONALD: (tape inaudible)

CHAIRMAN: I'd like to call on Robert Watson, of the New Brunswick

Federation of Agriculture.

WATSON: The New Brunswick Federation of Agriculture, the general farm organization of the Province, is comprised of 15 member organizations and represents the views of more than 3000 producers through commodity and community group memberships. A list of member organizations is attached.

The issue of agricultural pesticides is very important to the farming communities, and therefore, the N. B. Federation of Agriculture appreciates this opportunity to address this matter to the Pesticides Advisory Board.

PESTICIDE UTILIZATION IN THE FARMING SECTOR

Agricultural production is a very important component of the overall economy of New Brunswick. The farming community depends on the availability and utilization of various pesticides for individual farm success and viability. Any action to decrease the availability of a much needed agricultural chemical in New Brunswick will have a negative impact on the provincial farming communities' ability to compete in national and international markets. Agricultural pesticides are required to ensure that New Brunswick grown products are of the highest quality to meet consumer demand.

The high cost of agricultural pesticides relative to the overall cost of production of crops in New Brunswick has resulted in farmers being very aware of appropriate handling and application of pesticides.

A BALANCED APPROACH TO PESTICIDE INTRODUCTION AND UTILIZATION

The New Brunswick Federation of Agriculture feels that an appropriate forum should be utilized to involve the farming and non-farming sectors so that pesticide research, registration, addition, deletion, licensing and utilization can be better understood. This would provide a mechanism for all parties to understand regional needs and special situations.

ENHANCEMENT OF RESEARCH

The development of improved pest management programs for utilization in agricultural production must be a priority for the public and private sectors. The control of crop pests in individual crops through the development and utilization of

pesticides and biological means is very important to the future of our industry.

GOVERNMENT SERVICES

The New Brunswick Federation of Agriculture recommends the continuation and enhancement of the pest monitoring services and weather and climate data tabulation. Information obtained from these services allows farmers to make proper decisions in the effective utilization of agricultural pesticides.

TRAINING AND EDUCATION

The issue of proper handling and use of agricultural pesticides is recognized by the N. B. Federation of Agriculture. The need for continuous public expenditure is required to assist the farming community in the proper handling and application of pesticides and also the better understanding of the nature and activity of pesticides relative to individual crops and crop pests.

SENSIBLE LAND USE AND HOUSING POLICY

The urban-rural conflict over pesticide utilization must be addressed through an appropriate land use legislation. The New Brunswick Federation of Agriculture has tabled a request with the N. B. Department of Agriculture for "Right-to-Farm" legislation that will hopefully improve the position of a farmer when urban interests interfere with farmer interests. Particular reference should be given to the initiation of housing projects directly adjacent to on-going farm operations.

PESTICIDE DUMP SITES

The New Brunswick Federation of Agriculture is aware of the Department of the Environment's activity in the designation of dumpsites for pesticide containers and is supportive of such an initiative. Every effort should be given to encourage farmers to use these dumpsites coupled with proper on-farm rinsing of containers to ensure additional safety to our environment.

PESTICIDE CONTAINERS

The issue of pesticide containers, quality of containers, returnability to manufacturers, labels and units of measurement are of concern to the N. B. Federation of Agriculture. Pesticide

manufacturers should be encouraged to supply pesticides in returnable containers whenever possible. In cases where containers must be disposed of, instructions on disposal should be indicated on the label. In addition it is also recommended that the units of measurement for individual pesticides be listed within the metric and imperial systems. Measuring containers should be supplied by the manufacturer and all pesticide containers should have proper spouts and/or handling devices.

AERIAL APPLICATION OF AGRICULTURAL PESTICIDES

The Government of New Brunswick has introduced regulations some years ago relative to the aerial application of agricultural chemicals. The concern of the N. B. Federation of Agriculture is two-fold on the matter. Since our growers are competing against out-of-province sources of foods on a continual basis, it is felt reasonable that the New Brunswick producers are not restricted to any larger degree than their counterparts in the usage of pesticides. The N. B. Federation of Agriculture is also of the opinion that further study is needed on the collection of data that is required to support the present regulations and to support any changes to the regulations. The Federation has made representation to the appropriate governmental agency for such a study project.

CONCLUSION

The production of food in New Brunswick is an important economic activity. An appropriate legislative and regulatory framework must be created that will provide an economic environment that is conducive to the cultural practices under a modern technological agricultural industry.

CHAIRMAN: Thank you. Are there any questions from members of the Board? I would now like to call on Mr. Ian MacDonald of the New Brunswick Forest Products Commission.

MACDONALD: I have made twenty copies of this brief (in English) available to you.

The New Brunswick Forest Products Commission appreciates the opportunity to once again present a short brief to the New Brunswick Pesticides Advisory Board at this the seventh of the series of public hearings.

To reiterate, this Commission has an independent chairman,

two representatives from wood producers, two representatives from wood processors, one representative appointed by the department of Agriculture and Rural Development and one representative appointed by the department of Natural Resources. At its meeting on November 20, 1984, the Commission agreed that a presentation should be made to the Provincial Pesticides Advisory Board during this public meeting, since the forest resource is so important to the province of New Brunswick.

This Commission again completely supports your Board's recommendations, particularly those recommendations relative to the regulated protection for all forest lands.

Practically every person in the province has been adversely affected by the decisions not to adequately protect the over 1 600 000 hectares of private woodlots. The disastrous effects are becoming more apparent each year on the 27% of the forest lands of our province represented by the private woodlot sector. In comparison: 20% of the forests are owned by the forest industrial sector; 50% is provincial crown land; and 3% is federal crown land.

While some protection against the budworm plague on private woodlots has been given during the past 5 years (1980 through 1984) the approximately one percent of the area covered by a spray program (the total protection over the 5 year period) is only a drop in the bucket and far below the protection that is really needed.

Since late in 1977 the New Brunswick Forest Products Commission has been emphasizing the need to protect all the private woodlot sectors from the budworm plague in at least the same degree that the large industrial forest lands and the Crown forest lands are protected. The results of not protecting the private woodlots of New Brunswick are becoming more and more apparent each year. The private woodlot owners are just beginning to realize the losses that have occurred on their properties.

THIS COMMISSION AGAIN EMPHASIZES THE NEED TO PROTECT THE REMAINING MERCHANTABLE AND YOUNG GROWTH SPRUCE AND BALSAM FIR TREES.

It is impossible this year, as noted in previous years, to salvage all of the merchantable trees that have been affected by the budworm. The markets this year, though a bit better, still require that a high quality product be produced by New

Brunswick mills in an attempt to be competitive in the marketplaces of the world. Every effort has to be made to assure that the province of New Brunswick has a sufficient supply of softwoods to meet the long term demand of local and world markets. For this reason the need for protecting: 1) fir and spruce plantations; 2) other silviculturally treated softwood stands and 3) merchantable softweeds, has to have the highest priority.

At the same time research efforts to find suitable alternatives to pesticides must be continued. I again remind you of the recent decision of the Nova Scotia Provincial Court relative to the herbicide trial. The use of pesticides and herbicides must continue. The postulated health hazards from their use are indeed, as the Commission and others keep pointing out, insignificant in comparison to the traumatic effect on many lives as a result of unemployment and extreme fire hazard created by budworm killed softwood stands. The Bonny River forest fire in Charlotte County a few years ago is an example of how fast a fire can spread. I still remember the smell of smoke, the sun being red for weeks, and the fear I had as a boy here in Campbellton from the forest fires in this part of New Brunswick during the early 1930's. These fires developed in forests killed by the budworm plague of the 1920's.

To conclude once again, satisfactory protection of private woodlot forests is truly long overdue - one percent is far from satisfactory! You can still rely upon the New Brunswick Forest Products Commission to strongly support the decisions of the Pesticides Advisory Board and the regulated use of pesticides and herbicides.

For everyone's information, and to encourage a two-way flow of communication, I attach a list, in English and in French (dated 23 October 1984) of the names and addresses of the members of the Commission.

Thank you again for the opportunity to express the continued concerns of this Commission.

CHAIRMAN: Thank you very much. Are there any questions from members of the Board?

I have one. You mentioned the percentage, one I think, of the private woodlot forest areas receiving protection. I was wondering, now that Bt is available, and can be used fairly close to habitation, do you think this is an efficient and acceptable

method of protecting private woodlots?

MACDONALD: (tape inaudible)

BECKINGHAM: I find the gentleman's statements very callous and in very bad taste, particularly when you say that any health problems that occur from spraying are insignificant when matched against the loss to business. I find that statement in very poor taste. You said it! It's a quote from you, sir. I copied it. You talked about how tearful your eyes were when you saw a red sky with fire and smoke and all the rest of this nonsense. You talked about that it was insignificant in light of the loss of human life as compared to what would have happened if it wasn't sprayed? I find that in extremely bad taste, sir.

MACDONALD: (tape inaudible) What I'm saying, sir, is that the postulated health hazards are insignificant in comparison to the traumatic effect on many lives as a result of unemployment and the extreme fire hazard created by budworm-infested stands. And when you tie that in with industry, sir, (tape inaudible).

BECKINGHAM: We don't anticipate having disasters like that strike us again, because of the technological advances made in firefighting. Are you belittling the advances made by the New Brunswick Firefighters Association?

MACDONALD: (tape inaudible)

CHAIRMAN: I would like to call on the next presentor, Mr. Keith Bowser of Fraser Inc.

BOWSER: Ladies and gentlemen, my name is Keith Bowser, I'm a registered professional forester.....(tape inaudible)

Another year has passed.

In recognizing that the same environmental issues regarding the use of pesticides are before us now as were before us last year and the year before that, we have chosen to comment on what we regard as some highlights of the past year.

1. <u>Good things:</u> First it is a good thing that environmental issues regarding the use of pesticides remained before us this year and it would be a good thing if they remain before us in the future. It is an important subject.

2. Communications. Communication and understanding have improved between the users, who understand their immediate problems and who have a limited arsenal of practical solutions; and the critics who have a limited understanding of the immediate problems and an unlimited arsenal of possible solutions, or just one solution, namely STOP.

3. Dumps: Disposal of used pesticide containers has been prominent in the news recently. This is of course a small part of our overall problem of how and where to dispose of all the wastes of our modern society.

4. Safety: The detailed processes necessary to develop a chemical product and the tests required for registering it for its intended uses have gotten some publicity and received a much better level of understanding.

Good things:

The awareness developed over the past twenty years of the need for protecting our environment has been good. It has awakened us to the fact that our natural balance is fragile, and cannot be taken for granted or ignored. Now that we have been awakened (and often rudely awakened), the time has come to take a more sophisticated approach than a "scattergun" with a "hair-trigger" when it becomes necessary to fire a shot.

Since we will never return to the cave-man style of living, we must make use of our modern technology to maintain or improve our life-style. At the same time, since we know there is no such thing as "Zero Risk", we must put that same technology to work to weigh risks and help us to arrive at rational decisions on how to use those tools that appear to be improvements.

Communications:

To use a worn-out phrase: "We have to have better communications." Ever so slowly we are achieving that, between the users and those who question the uses.

Undoubtedly, the best communication is achieved by users and questioners travelling together, observing things "on the spot", and exchanging views and ideas. This can be a revelation and a valuable experience for both. For example, this year our Company participated in a tour of forestry operations with the Environmental Council of New Brunswick. An experience such

as this teaches all of us that there are many things we do not see or understand until someone points them out to us on the spot. Ideally, it should be groups on both sides with more "activist" leanings who are communicationg directly. However, as we well know, the more "activist" one's leaning is, the more difficult it is to subject oneself to other viewpoints.

The annual hearing of this Board is an example of communication. Last year we heard the Board criticized because no debate is allowed at the hearings. Because there is a bit of "clown" in all of us, I suspect there may be fears that a debate could result in a "circus" which would provide little more than entertainment. However, we might suggest that if there were more questions forthcoming from the Board, it would tend to clarify points or even introduce ideas that might not otherwise be expressed.

Dumps

In New Brunswick there has been a recent witch-hunt for chemical containers that have been disposed of during the past twenty years or so. The search has brought out two points among others;

1. It is extremely difficult to find any significant trace of chemicals in old dump sites.

2. There are still some questionable practices going on in the disposal of herbicide containers. We in the forest industry are very sensitive to this because we are extremely vulnerable. Not only are we a favorite target for environment-related criticism here in the Atlantic Region but our choices of chemical tools are extremely limited as a result of that criticism. (The real story behind our being a favorite target has to be an absorbing one, but I will not comment further on that.) With the exception of agriculture, we have more at stake in being able to use pesticides than any other user. Any poor practices by other users is bound to reflect on us and we appeal to all users to "clean up their act."

Safety

As a user, we are concerned with the safety of the chemical tools we use. However, we must depend upon, and have faith in, the processes which take place before a chemical is approved. This is an involved process. So involved, we feel, that when

completed, the risks must be regarded as being acceptable.

I have some slides here, with commentary which summarizes the process.

1. Today, in Canadian laboratories, dozens of scientists devote their days to the development of pesticides that will be effective in their designed tasks. Chemical and biological formulations are constantly being tested against rigid criteria for safety and effectiveness that are established as part of the government regulatory system.

2. Throughout this testing, concern for human health and the environment is paramount. The long and rigorous scientific evaluation to which all chemical products must be subjected, is designed to assure the public and the user that approved pesticides can be used safely when they are needed.

3. A number of laws regulate their use. These provide checks and safeguards to evaluate and minimize the impact on the environment and ensure that the product is capable of successfully carrying out its assigned task.

4. The introduction of a new chemical is a long, costly and difficult process. For example, once a company discovers an effective herbicide....

5. ...it begins to amass data such as chemical specifications and properties, toxicological studies, as well as studies of its effects against target species. This process may take from 3 to 4 years.

6. Should these studies prove satisfactory, the herbicide is then exposed to a wide range of field tests that may last up to 5 years.

7. Once the field tests are completed and provided there is sufficient data to support registration of the herbicide, the data is sent to Agriculture Canada which oversees all registrations of new herbicides. This department then sends this material on to Health and Welfare Canada, Environment Canada and Fisheries and Oceans Canada, for their review.

8. A closer view of the process within each ministry reveals the thoroughness with which each chemical is scrutinized. Each branch or division of the four ministries involved

reviews the manufacturers' data.

9. Throughout this process, a wealth of information is once again generated on the efficacy of the herbicide, its effects on the food chain, our flora, our fauna, and our health.

10. No stone is left unturned as mountains of data are compiled and gone through with a fine-tooth comb to ensure that the experiments were properly designed, executed and analyzed.

11. The various ministerial branches and divisions involved in the assessment of the new herbicide then forward their findings and recommendations to the Ministry of Agriculture for a decision.

12. Should Agriculture Canada's pesticide division decide that the herbicide under evaluation meets all of its requirements, it will authorize its use.

13. While some herbicides used in forestry were originally registered as agricultural herbicides, approval as an agricultural herbicide does not mean automatic approval for forestry use. If the product has application in the management of the forest, the company must then obtain efficacy data, knowledge of its lifespan in the environment and its impact on surrounding species. This step is likely to add another 3 to 5 years to the approval process.

14. The new data is then submitted to Agriculture Canada for evaluation and possible registration.

15. Once a herbicide is registered, a wide variety of provincial laws and regulations come into play to ensure proper storage, transportation, mode of application, personnel training and licensing, and disposal of the herbicide. Only then is the product made available to be used in a forest management program.

16. As we can see, the development and use of pesticides to provide better forests is preceeded by a decade or more of careful study and is in a constant state of review and re-evaluation in the light of new technology and new regulations.

Regarding the <u>final</u> registration process, we must point out that "inconsistency prevails" and it has a direct effect

on forestry in Canada. Let me use one example, which is only one of many I could use. It applies to forest tree nurseries. If, for instance, one is operating a nursery to grow plants for any other purpose than for forest renewal, one is free to pick up any container of fungicide, insecticide or herbicide off the shelf at his friendly supply store and use it legally to protect his crop. However, if one is growing trees for forestry use one is limited to those registered for forestry use, which is a mighty short list and often does not fit the criteria for best all-round results, including safety.

This particular situation is made even more ridiculous when one recognizes that there is a trend across Canada for governments to contract out the growing of tree seedlings for forestry use, and that many of these contract growers are already in the business of growing flowers, shrubs, bedding plants, and fresh vegetables for our salads. It's high time that a little more reason prevail in what is often, in the final analysis, a political decision on registration to appease vocal minorities. This kind of approach at the end of the process discourages the high expenditures of time and money which are necessary at the beginning and reduces the number of options a user has at his disposal to an unacceptable level.

Of course, once we have been assured that the product is reasonably safe for the environment and for those that come in contact with the environment, then we must be sure that the product is handled with due respect and according to established rules.

The product is not made to drink, or to wash in, it is designed for another purpose and its usefulness and safety depend upon its being used as prescribed, with due respect.

WEEDS

Finally, although this was not mentioned at the beginning, I again cannot resist the topic of hand weeding tree plantations. It appears from an outsider's viewpoint that this is a perfectly logical way of killing two birds with one stone - get rid of the weeds and put people to work. Here is my viewpoint; if we were still in the age of slave labour in North America or if we lived in a Third World Country, that is the way we would do it. But we must be reminded that we did not become the bread-basket of the world by hand-weeding wheat, and that our people are three generations away from doing this kind of work even

if we could afford to pay them a fair wage for doing it. We are not talking about anything as simple as removing lawn dandelions by hand. I invite any proponent of hand weeding to come away with me for a day. We will work at hand weeding a plantation. And on the first anniversary of that day we will return to the same spot and assess our accomplishments from all angles.

To sum up, we are a year older and a bit wiser. My feeling is that our wisdom will increase exponentially from here on.

CHAIRMAN: Thank you. Are there any questions from members of the Board?

(Tape inaudible)

BOWSER: An example I used was in the nursery context, and one of the big problems in a tree nursery is weeds, for the same reason that it's a problem in the environment. They have to be kept down. (tape inaudible)

BOARD MEMBER: Mr. Bowser, I just want to make sure I understand .....Are you saying that a person who grows black spruce or white spruce for landscaping purposes has a broader range of pesticides at their disposal than a person who is growing as you are.....

BOWSER: That is my understanding, sir. There's another parallel there too. If you are a woodlot owner and you are growing Christmas trees, you can spray pretty well what you like when you like to protect your Christmas trees. But if you have thinned out a few acres of balsam fir for the purpose of growing wood, then you are quite rigidly restricted as to what you can spray and where. This is another inconsistency.

CHAIRMAN: (tape inaudible)..

CLIFFORD: A while ago you said this stuff was not made to be drunk nor to wash in. I'd like to know why we have to wash in it and drink it, because it's in our wells and in our water supplies. And the other thing I'd like to find out is you're talking a safe application. How can you safely apply a chemical (tape inaudible).....

BOWSER: Well,...if you have evidence to back this up..

CLIFFORD: I do, I have evidence that my water supply is contami-

nated, (tape inaudible)...I have no doubt it was pesticides....

BOWSER: I would like to see the results of those tests..(tape inaudible) There is an acceptable level of contamination because there is no such thing as zero risk, as you well know. We take risks every day.

CLIFFORD: I don't like to take the risk..(tape inaudible)...my water is poisoned.

CHAIRMAN: Thank you very much. We have one more speaker on our list, Mr. Gallant from the Conservation Council. Before we take a break for coffee, is there anyone else who would like to address the Board?

GALLANT: **INTRODUCTION:**

Pesticides are ubiquitous in our environment. They are used extensively in agriculture, industry, forestry and the home in both Canada and around the world to control a large variety of animal and plant pests. The use of pesticides involves the deliberate application to land or water of chemicals which are poisonous to selected organisms. Since the late 1940's when synthetic organic pesticides became commercially available, there has been a dramatic increase in pesticide sales and use, both in Canada and worldwide.

In the United States, for example, pesticide usage rose from slightly over 400,000,000 pounds in 1970 to almost 1.2 billion pounds in 1980. At the same time, pesticide sales went from less than $1 billion (U. S.) in 1970 to in excess of $3.5 billion in 1980. According to Canadian Federal officials, between 1971 and 1981, total pesticide sales in Canada increased 12-fold in current dollars ($57.3 million to $698 million) and more than 4-fold when adjusted according to the Statistics Canada price index for pesticides ($57.3 million to $243 million).

Increases in sales are reflected in the magnitude of pesticide use around the country. In the Maritimes, the Federal government indicates that pesticides are used both intensively and extensively with forest spraying, representing "the most intensive use regionally." Between 1975 and 1979 expenditures on pesticides by Canadian farmers increased from $163 million a year to more than $350 million, an increase of over 100%.

Whether these figures represent the total picture regarding

pesticide use in Canada is debatable. According to a Federal government document, expenditures by all levels of government for control of insects and weeds are not readily available. Information which could determine exactly what pesticides are used by whom, how frequently, at what application rates, on how much acreage, and where and in what quantities, does not appear to be systematically available, nationally or provincially.

While the application of pesticides has been viewed as providing economic benefits to societies in the form of increased forestry or agriculture yields and the control of disease, two main categories of undesirable effects resulting from pesticide use have been identified. These are (1) the adverse impacts on target species and ecosystems and; (2) the adverse impact on human health. The United Nations Environment Programme has noted:

> "When carelessly applied, chemical pesticides can result in acute and long-term side effects including sickness and death of people, useful animals, fish and birds, and destruction of crops. Even when properly used, chemical pesticides have a number of unavoidable side effects. Their persistence and ubiquitous nature, coupled with a tendency for some compounds to concentrate in organisms as they move up the food chain, may increase their toxicity to fish, birds, and other forms of life, including man, and cause other harmful effects on man's health and well-being.
>
> (United Nations Environment Programme, The State of the Environment, 1979 (Nairobi, Kenya: UNEP, 1979) at p. 10.

While recognizing the economic benefits that may be derived from the proper and judicious use of pesticides, the Conservation Council of New Brunswick is gravely concerned about the collateral adverse aspects of pesticide usage. This concern is with respect to all uses of pesticides (domestic, industrial, agricultural and forestry) and to all potential adverse impacts, including impacts on the natural environment and human health. This brief will address three issues: (1) the agricultural use of pesticides; (2) the response by the provincial government to the recommendations of the Spitzer Task Force concerning the use of pesticides; and (3) an economic critique of the spruce budworm spray programme. However, the Conservation Council stresses that concerns addressed in prior briefs which have not been adequately addressed by the government should be reexamined by this Board for a satisfactory resolution.

II. ISSUES

1. The Agricultural use of Pesticides.

The Conservation council appreciates the sensitivity and the political nature of this topic. It must be clearly and unequivocally stressed at the outset that the Conservation Council is not advocating that agricultural pesticides be banned. Our concern is primarily with respect to the potential adverse health consequences of the people most likely to be affected by the indiscriminate use of agricultural pesticides - the farmers themselves. In a document entitled A Survey of Pesticide Use Practices in a Small Agricultural Watershed of New Brunswick, (February, 1982), the New Brunswick Department of the Environment concluded that there was serious and persistent pesticide misuse in the New Brunswick farming community:

> Improper container disposal, careless sprayer filling techniques, inadequate personal protective equipment and a general lack of concern regarding the use of pesticides were revealed. Such problems appear to be directly related to a lack of regulatory intervention (including a coordinated system for managing the safe disposal of used pesticide containers) and a general lack of understanding among farmers of the potential health and environmental risks associated with careless pesticide practices.

The issue is clearly not to apportion blame: no one is pointing to the farmer as an irresponsible citizen who has no concerns about the environment or the health of his family or his neighbours. Indeed, the provincial survey makes it quite clear that a primary reason for careless pesticide practices within the farming community is a lack of comprehensive regulations designed to ensure the safest possible handling and disposal techniques for pesticide. Such a regulatory scheme must be immediately developed, in consultation with all parties interested in the use of agricultural pesticides. At the very least, this scheme must reject in principle the current agricultural pesticide container disposal practices recommended by the provincial Department of the Environment. The rinse/puncture/bury technique and the burning of empty combustible pesticide containers are totally inappropriate to the safe disposal of spent pesticide containers. A simple, inexpensive and efficient recycling project must be established. If we can recycle beer bottles, surely we can

develop a pesticide container recycling process, particularly as the environmental and health impacts are so critical! There are workable precedents in other jurisdictions which should be examined.

The New Brunswick survey also notes that a great deal of the difficulties associated with careless pesticide practices result from a lack of understanding among farmers of the potential health and environmental impact. The provincial government has a moral and a political obligation to do its utmost to educate all people that use pesticides, including farmers, of the vital importance of handling these products in a safe manner. Unfortunately, most pesticides do not exhibit immediate, acute and obvious impacts. Their effects on human health and the natural environment are most often subtle and develop over an extended period of time. Therefore, it is difficult to associate the adverse impact with improper pesticide exposure. Damage is usually not contemporaneous with pesticide usage. The responsibility of the government to educate people on the pesticide issue must involve a comprehensive analysis of using reasonable alternatives to synthetic chemicals. The Conservation Council is convinced that a comprehensive understanding of the totality of the pesticide problem will significantly reduce the potential and environmental risks associated with the use of pesticides.

2. Response by the Government to the Task Force Proposals

The final report of the New Brunswick Task Force on the Environment and Cancer submitted March 16, 1984 by the Task Force Chairman, Dr. Walter Spitzer, to the Minister of Health of the Province of New Brunswick concluded that an analysis of the published statistics on cancer incidents and mortality, both within New Brunswick and for New Brunswick as a whole compared with Canada on the one hand and Nova Scotia on the other hand, revealed some differences that require further investigation. Contrary to many media reports suggesting that the Task Force found no cause for concern with respect to the suggested higher incidence of cancer in New Brunswick, the Final Report made it abundantly clear that there are many types of cancer which are indeed statistically significantly higher in New Brunswick than in other parts of Canada. The Task Force specifically listed a number of cancers that are worthy of further investigation to determine whether they are related to pesticide spraying.

These include cancers of the stomach, salivary glands, liver, nose, connective tissue, uterus, prostate, nervous system,

endocrine glands (excluding thyroid), and tumours of the lymphatic system (see chapter 3 of the final report and especially pages 102-105.)

The Task Force made a number of recommendations in an attempt to minimize the adverse human health impacts associated with the use of pesticides. The Conservation Council of New Brunswick would like to ask and would like answers from the Pesticides Advisory Board or a government official concerning the status of the recommendations of the Task Force. In particular, are long-term carcinogenicity studies in at least two species of mammals being conducted for the active ingredients of all of the spray formulations used in the (forestry and agriculture) (see Recommendations A, B, and C of the Final Report - page 138).

Will the government release the chemical composition of pesticide formulations used in the province? (See Recommendation D.)

Will fractions of fuel oils be banned from use in any spraying formulations? (See Recommendations E and F).

Are epidemiological case-control and ascertainment studies designed to test specific hypotheses relating to the health of the people of New Brunswick as suggested by the findings of the Task Force Final Report being conducted? (See Recommendation K).

III. ECONOMIC ANALYSIS OF THE SPRAY PROGRAMME

Proponents of the spray programme are virtually unanimous in their assertions that its economic benefits far outweigh all cost factors. Industry representatives continuously extol the virtues of the use of chemical insecticides, juxtaposed with anecdotal evidence of mass unemployment and a crippled New Brunswick economy if chemicals are not used. These spokespeople tend to reduce the complexities of the spray regime into a simplistic, erroneous and sensational statement; use chemical insecticides to protect the forests or do not use insecticides and destroy the province's economy. This approach has found approval within governmental circles. In 1979, the deputy Minister of Natural Resources stated that, from 1952 to 1976, the province would have lost "an estimated total of 30,000 man-years of employment and $400 million in employment income" without the spray programme. In 1982, the former Minister of Natural Resources, J. W. (Bud)

Bird, reportedly stated that "if the spruce budworm were allowed to go unchecked, 100,000 jobs related to the forest industry would be adversely affected."

Industry spokespeople at various public hearings have consistently preached of the disaster scenario of a budworm control regime which reduced or prohibited synthetic chemicals. During the 1980-81 hearings of the Pesticides Advisory Board, Mr. Pat Marceau, a representative of the J. D. Irving Co., made the following statement:

> Pesticides are a basic necessity for continuous improved productivity in the forests of New Brunswick....Farmers today are dependent upon chemical products to grow their crops....The need for chemical sprays to protect our investment in forest management is also a necessity. Destructive forest insects....must be controlled on our forests.

At the same hearings, Ian MacDonald, representing the New Brunswick Forest Products Association, stated:

> The disastrous effects of not protecting our forests from the budworm will have a traumatic effect on many lives because of the danger of being hungry, unemployed and faced with an extreme forest fire hazard.

During the 1982 Pesticides Advisory Board Hearings, Mr. Larry Fyfe, representing Fraser Inc, quoted with approval a letter to the editor of a daily New Brunswick newspaper stating that the anti-spray groups were not interested in preserving the forests and the economy of the Province and that, if the programme were stopped, "one can expect the softwood forest industry to collapse." Mr. Fyfe continued:

> The economic situation of the day has given us a slight taste of the hard times when the forest-based industry is not operating at capacity. In this case, due to (lack of) market demand....mills have had to shut down....The same situation would exist if demand was good but the wood supply was not there to run the mills....We know the benefits of spraying and its limitations....

At this hearing, Don Lockhart, the executive director of the New Brunswick Forest Products Association, made a most emotional

for supposed economic sanity! After stressing the significant impact of forestry on the economy of New Brunswick, he lamented:

> But there are people in this province: there are people in Nova Scotia, I guess there are probably people everywhere, who would deprive the forest manager of one essential tool of crop management and I refer to duly registered pesticides....Any crop must have protection against fire, insects, disease and weeds. If any one of those agencies is present to a significant degree, the crop will be destroyed or severely depleted. But there are people who would take away this necessary tool, who would let the old crop and the new crop be destroyed, who would deliberately put people out of work because that, in my opinion, is the bottom line. Right now these selfish people have targetted the forest industry, but assuredly they will not stop there....These people....would destroy New Brunswick's number one bread and butter industry.

During his introductory remarks to the Standing Committee on Fisheries and Forestry in May, 1983, Mr. Lockhart was only slightly less emotive:

> It must....be obvious to any thinking person that to reduce or deny protection to the forest (using synthetic chemicals) can only have very adverse economic effects on the province. To those who would reduce or deny (chemical) protection we simply ask, tell us....what alternative means of employment do you suggest.

It would seem clear that the forestry sector and certainly "any thinking person" would have acceptable economic evaluations of the spray programme to support this unqualified assertion that the use of synthetic chemicals is cost effective. Amazingly, and after 33 years of spraying at tremendous financial cost, thre has never been a proper economic analysis of the spray programme! Interestingly, industry spokespeople assume the identical characteristics they attribute to environmentalists--sensationalism, uninformed opinion, scare tactics, and blind reliance on unsupported assumptions. To be sure, a few descriptive economic evaluations of the spray programme have been done. But none of them even remotely assess, in accordance with accepted economic principles, the total cost of the spray programme and the viable alternatives thereto.

Most industrial spokespeople point to the 1976 Report of the Task-Force for Evaluation of Budworm Control Alternatives (the Baskerville Report, named after its principal author) as the definitive study of the economic benefits of the programme. Prior to that time, no acceptable economic analysis had been completed. Indeed, Mr. Lockhart boldly admitted this startling fact at the hearings of the Parliamentary Committee on Fisheries and Forestry:

> The largely intuitive conviction of the industry and a succession of provincial governments up to 1976 that any other course than spraying would be economically unthinkable and would amount to relegating the forest management role to the budworm has been convincingly backed up by more elegant forms of analysis developed in recent years, and for which Dr. Baskerville....has become a chief spokesman (emphasis added).

A series of questions and answers at the end of Mr. Lockhart's presentation to the Committee is revealing:

> Q. Would you....be in support of having a cost benefit analysis done of the entire spraying program versus B. t.?
>
> A. ....Forest Products Association in New Brunswick has come out and said that we think we should have yet another cost benefit analysis done, keeping in mind that over the last 10 years there have been something like six or seven cost benefit analyses done relative to the whole spray program...not one of them has ever indicated that there was not a benefit to society in general and industry in particular as a result of it.
>
> Q. ..would you consider the Baskerville Report to be a cost benefit analysis?
>
> A. Yes, if you stretch it a bit, I would....I know, going back over a 10-year period, cost benefit analyses have been done by the university, by the Department of Natural Resources, by Forest Protection Limited and others.

The "six or seven cost benefit analyses done relative to

the whole spray program" undoubtedly refer to the six following reports:

(1) Wilson, D. A. Benefit-Cost Analysis: Spruce Budworm Spraying Program, New Brunswick, 1960, 1966.

(2) MacDonald, D. R. Forest Protection Against Spruce Budworm in New Brunswick, 1966.

(3) Marshall, Bradford. The Spruce Budworm and the Dollar in New Brunswick, 1975.

(4) Baskerville, G. L. Report of the Task Force for Evaluation of Budworm Control Alternatives, 1976.

(5) Hanusiak, R. R. Practical Considerations in Decision-Making Processes Related to Budworm Management: Why New Brunswick Has a Crop Protection Plan, 1979.

(6) Runyon, K. L. Economic Impact of Spruce Budworm: An Eastern Canade Perspective, 1980.

3.2 The Senopi Report

A comprehensive critique of the six economic studies of the budworm programme conducted by Senopi Consultants Ltd. in March, 1983 concluded that weaknesses inherent in each study render them ineffective in providing a comprehensive economic evaluation of the spray programme and the alternatives thereto.

The MacDonald Report (1966), the Hanusiak Report (1979), and the Runyan Report (1980) are all descriptive of the actual economics of the present spray programme. None of these reports analyse or critique the underlying economic assumptions or the cost:benefit ratio of the spray regime. Indeed, Runyan clearly states in his introductory remarks that he has no intention of identifying or analysing the economic impact of the spray regime. "To do this, I would have to be able to estimate reduction of growth loss, mortality and values over time....Most of this information simply is not available." These three reports can therefore be dismissed outright as justifying any favourable benefit:cost ratio for using synthetic pesticides to suppress budworm.

The unpublished 10-page Wilson Report (1966) is, to date, the closest approximation of a proper economic analysis of the spray programme. Using figures from the 1960 spray programme, Wilson estimated a benefit:cost ratio of approximately 7:1 favouring chemical spray for the 10-year period ending in 1969. In arriving at this ratio, Wilson clearly articulates his three principle assumptions. First, "it is assumed that spraying will be required over a 10-year period, that is through 1969". Second, the operations "will cost about $1,200.000.00 annually." Third, "future operations will probably be about the same size as the 1960-65 average of 1,9000,000 acres." In fact, the spray programme has been carried out for 23 years since 1960, direct costs are now in excess of $15,000,000.00 annually and, since 1960, the average annual acreage sprayed far exceeds 1.2 million acres. Thus, Wilson's calculated costs and benefits are meaningless because the assumptions upon which they are based are completely inappropriate.

The Marshall Report (1975) is a four-page article published in "The Forestry Chronicle." The brevity of this report resulted in over-simplification of stated assumptions and makes a critique difficult. The author does note that historical cost:benefit analyses of the spray programme were academic because of "the immense value of the forest resource and virtual certainty that the benefit:cost ratio would prove advantageous." Marshall then cites the Wilson Report in asserting that the "economic benefits of preventing major industrial disruption appeared to outweigh the control programme costs by a considerable margin." The Senopi Report also criticizes the soundness of Marshall's eight assumptions.

The Baskerville Report (1976) cannot be critiqued because the author never states the underlying assumptions of the document. In any case, and more fundamentally, the author unequivocally states that the budworm model developed in the Report is a biological simulation model and <u>not</u> an economic analytical model. The author stresses the type of information needed to generate a proper benefit:cost analysis, but continues:

> Although such a study is considered to be of the utmost importance, time constraints and terms of reference place it outside the scope of the present study.

7.3 CONCLUSION ON ECONOMIC ANALYSIS

In the 10-year period from 1971 to 1981, the direct cost of spray operations have increased by 537 percent. These figures do not include indirect costs such as dollars spent by federal and provincial departments on planning for and monitoring of the spray operations, legal fees incurred in defending expensive lawsuits, and costs of consultants' reports and Task Force Reports on various adverse aspects of the programme, the unmeasurable costs of health care resulting from spray-induced illness, and the costs of damage to the ecosystem resulting from the use of toxic insecticides. Obviously, no attempt had been made to doscount the potential for <u>any</u> future risks (human health or ecological damage). Finally, no attempt has been made to quantify intangible costs associated with the spray regime. The provincial government should immediately commission an independent, comprehensive economic analysis of the use of chemical sprays and viable alternatives thereto for forest management.

CHAIRMAN: That completes the list of presentations that I've received. Is there anyone else from the audience who would like to make a presentation at this time? Yes.

SPEAKER: I would just like to say that if you have no way of policing the operation of the spraying, then why are you allowing permits for people to spray these herbicides? For example, they warn...(tape inaudible)

CHAIRMAN: My response would be that the operations are monitored with the staff available to the pesticide section. It would be impossible to monitor every pesticide application that takes place in the province.

If there are no other presentations, there are a couple of points I'd like to make. Please be sure, presentors, you have made copies available to the official so they can be be entered into the transcript. I'd like to thank those presentors who have come here this evening with their recommendations and comments. Some excellent ones were put forward this evening, user fees, closer communication between the users and those opposed to the use of pesticides, among other items. I'd like to thank the translation service who came here this evening, as well as the people who made preparations for the use of this hall. If there are no further questions I'd like to adjourn this meeting. Coffee is available in the foyer. Thank you very much and drive safely.

APPENDIX NO. 1: REFERENCES SUPPLIED BY THE CONCERNED PARENTS

References

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APPENDIX 2

MEMBER ORGANIZATIONS OF THE NEW BRUNSWICK FEDERATION OF AGRICULTURE

New Brunswick Milk Markering Board.

New Brunswick Turkey Marketing Board.

New Brunswick Chicken Marketing Board.

New Brunswick Greenhouse Products Marketing Board.

New Brunswick Cream Producers Marketing Board.

New Brunswick Pork Producers Association.

New Brunswick Fruit Growers Association.

New Brunswick Cattle Producers Association.

New Brunswick Egg Producers Association.

New Brunswick Vegetable Growers Association.

New Brunswick Strawberry Growers Association.

New Brunswick Dairy Goat Association.

Farm Area Region Members (FARM) Rexton.

Agricultural Society #156.

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